



Contemporary Issues in Business, Management and Education 2013

Macroeconomic factors and corporate capital structure

Natalia Mokhova^{a*}, Marek Zinecker^a

^a Brno University of Technology, Kolejní 2906/4, Brno, 61200, Czech Republic

Abstract

The aim of this study is to indicate the influence of macroeconomic factors on corporate capital structure in different European countries. The recent Global Financial Crisis and the following European debt crisis show the significance of the country financial stability, consequently the efficiency of fiscal and monetary policies, and their impact on the private sector. The macroeconomic policies of a country affect the financial performances of the companies and their future sustainable development and growth. We analyze the influence of external determinants on the corporate capital structure of non-financial manufactured companies based on the evidence from European developed countries and emerging markets for the period 2006–2010, in order to compare the level of the impact on the capital structure according to the countries' specifics. The managers make their financial decisions according to the source of financing and capital structure based on the company's advantages and disadvantages, i.e. its internal characteristics, and doubtless on the macroeconomic conditions and country specifics, i.e. external factors. For the purpose of this study the macroeconomic factors are divided into two groups represented fiscal and monetary policies of a country. The correlation and regression techniques are used to identify the relations between these external determinants and capital structure. The findings show the significance of macroeconomic factors in the decision making process regarding capital structure and the source of financing.

© 2014 The Authors. Published by Elsevier Ltd. Open access under [CC BY-NC-ND license](#).

Selection and peer-review under responsibility of the Contemporary Issues in Business, Management and Education conference.

Keywords: macroeconomic factors; external determinants; capital structure; fiscal policy; monetary policy.

1. Introduction

The decision making process concerning the financing choice of a company have a substantial significance in a corporate governance and consequently in its future successful development. The capital structure and its adjustment

* Corresponding author. Tel.: +420775088528.

E-mail address: mokhova@fbm.vutbr.cz

can be influenced by several internal and external factors or so called determinants of capital structure. In fact internal factors and their impact can be managed by a company, at the same time macroeconomic factors cannot be controlled by the managers. However both types of determinants have a significant influence on the corporate capital structure. And the knowledge about the level, direction and power of their impact support companies to make effective decisions according capital structure for the purpose of financial stability and sustainable growth.

There are several capital structure theories that explain the company's preferences and behavior according financing choice of a company. Among researchers two main theories are applied namely as Pecking Order Theory and Trade off Theory. The first one is established by Myers & Majluf (1984), and is based on the information asymmetry between company's investors and its managers. Firms prefer internal financing to external financing, but in the case of necessity of external financing the debt is preferable. This theory does not take optimal capital structure as a target, but use the firm's preferences for using internal instead of external sources as a starting point. The second one is *the* Tradeoff theory that grew out of the debate of the Modigliani –Miller theorem (Modigliani & Miller, 1963). The corporate income tax was added to the original irrelevance that in turn created a benefit for debt. The trade-off theory assumes that a firm trades off benefits and costs of debt and equity financing and finds an optimal capital structure taking into consideration taxes' advantages, bankruptcy costs and agency costs. These theories help to understand the nature of corporate capital structure and as well identify the potential internal and external factors.

Many studies try to shed light on the relation between capital structure and its determinants. Based on the literature review there are some key internal factors that have significant effect on the financing choice of a company: *profitability* (Barton & Gordon, 1988; Bauer, 2004; Bastos, Nakamura, & Basso, 2009; Bokpin, 2009; Dincergok & Yalciner, 2011; Keshtkar, Valipour, & Javanmard, 2012 and etc.), *asset tangibility* (Korajczyk & Levy, 2003; Bastos, Nakamura, & Basso, 2009; Frank & Goyal, 2009; Nguyen & Wu, 2011), *growth opportunities* (Titman & Wessels, 1988; Ozkan, 2001; Bauer, 2004; Daskalakis & Psillaki, 2008; Kouki & Said, 2012), *non-debt tax shields* (Ozkan, 2001; Korajczyk & Levy, 2003; Bauer, 2004; Kouki & Said, 2012; Lim, 2012), *firm size* (Michaelas, Chittenden & Poutziouris, 1999; Korajczyk & Levy, 2003; Bauer, 2004; Hanousek & Shamshur, 2011; Nguyen & Wu, 2011; Lim, 2012). The relations between these variables and capital structure can be negative or positive depending on countries' specifics and debt structure. As a rule authors identify capital structure proxies as market and book debt ratios, and also based on time factor (short-term debt ratio and long-term debt ratio).

The researchers also try to investigate how macroeconomic conditions influence different corporate financial performance. For example, Bhamara, Fisher & Kuehn (2011) argue that monetary policy influences corporate default through its impact on inflation and inflation expectations. Another study by Ameer (2012) shows the significant relations between number of IPOs and the macroeconomic factors as nominal interest rate, industrial production and initial IPO returns. Abaidoo & Kwenin (2013) try to investigate relations between macroeconomic conditions and corporate profit growth. They argue that expected inflation positively influence on the corporate performance and profitability. Moreover, recession expectation and variability in consumer sentiments have no effect on the profit growth in the long-term perspective.

Many studies are dedicated to stock returns. For instance, Li, Iscan & Xu (2011) argue that stock returns are influenced by monetary policy shocks in USA and Canada. However, Durham (2003) uses discount rate as a variable of macroeconomic conditions and his evidence show weak and insignificant relations between stock returns and discount rates in 16 countries. Chang, Chen, & Leung (2011) use Federal fund rate as a proxy and findings show its effect on stock returns in USA. Moreover, some other variables were investigated by researchers. Pal & Mital' (2011) findings show that gross domestic savings have insignificant impact on stock returns in India. At the same time Sing Mehta & Varsha (2011) argue that there is a significant relation between the same variables in Taiwan, but there is not significant impact of unemployment rate on the stock returns.

The rest of the paper is organized as follows. The second part represents the theoretical background according monetary and fiscal policy indicators and provides literature review of capital structure external determinants. The third part deals with research design as methodology and variable selection. The fourth part represents the empirical result of the research including correlation analysis between variables. And the last section summarizes and provides concluding remarks.

2. Theoretical background

2.1. Monetary policy

Monetary policy is a complex of actions managed by central bank. The main goal is to adjust the money supply or interest rates, in order to stabilize economy. As a rule, during the period of economic expansion, when interest rates are rising, the profit-motivated banks have tendency to increase loans to private sector, thus, corporate financial leverage should rise. According to the pecking order theory, companies during the period of peak economic activity should experience greater profit, thus, prefer to use internal financing as earnings. The expansion of credit and the quantity of money supplied increases aggregate demand, in order to prevent raise of inflation. Inversely, during economic downturns and fall of interest rate, the bank loans also start to decrease and consequently corporate capital structure. However, there can be two types of monetary policy: expansionary and contractionary. The first one increases the total supply of money by lowering interest rates, in order to adjust unemployment. The contractionary monetary policy conversely decreases the money supply by raising interest rates to control inflation. The monetary policy maintains price stability, full employment and economic growth. In monetary policy regimes with target low and stable inflation, the key interest rate is the main policy instrument. Thus, there are two principal monetary policy rules:

Nominal interest rate peg is an extreme form of stabilization which sets the short-term interest rate equal to a constant target plus noise (Bhamra, Fisher & Kuehn, 2011). So called passive policy as it does not respond to inflation.

Constant inflation target is the policy, where central bank fixes inflation rate and preserves it by the means of interest rate changes and other monetary tools.

Inflation represents an overall index for the cost of living. The expectation of changes in inflation rate influences credit and reinvestment risks. As a rule, the high rate of inflation is expected to adversely affect both the debt market and the stock market; consequently the rate of return is expected to be high, which adversely affects the price of the securities. As a result, the cost of capital is increasing, which makes some investments projects unprofitable and thereby adversely affects the rate of growth of the economy and consequently adversely affects the stock market. Therefore, under the conditions of higher inflation rate the debt will be more beneficial for companies, because the cost of debt decreases.

The nominal interest rates can be divided into long-term and short-term interest rates. Short-term interest rates represent business cycle stage prevailing in the economy. It reveals volatility in the capital market and the money market as well. Growth in interest rates may lead companies to increase their debt ratio, because of tax benefits or decrease financial leverage in order to reduce bankruptcy risk.

The changes in monetary policy affect the demand for money that in turn may influence financial market equilibrium, which consequently may change financing channels and financial constraints for private sector.

2.2. Fiscal policy

The fiscal policy is a government spending and taxing for the purpose of stabilizing the economy. As well there are short-term and long-term goals. In short-term outlook government prevent excessive unemployment and control inflation. For long-term perspectives fiscal policy encourage economic growth for the purpose of higher standard of living. Fiscal policy has two main tools as changing tax rates and changing government expenditure. There are also expansionary and contractionary fiscal policies. In the first case government increases aggregate demand by adjusting the budget through increasing spending or decreasing taxes. The companies lose their tax benefits for debt financing. Also raise in government spending may lead to bigger sales and profits, thus the retained earnings as internal capital will be available and more preferable. Consequently, the total leverage is going to decrease. Under contractionary fiscal policy it is the opposite.

The government resorts to debt, when spending exceed its revenue, and it is inadvisable to increase taxes or cut spending. The presence of well-functioning government debt market encourages development of efficient financial markets. Financial market development is essential for ensuring stable economic growth. Moreover, efficient

financial markets provide longer-term loans for companies (Das et al., 2010). A supply of interest-bearing sovereign debt facilitates the trading and valuation of all financial instruments that provide liquidity to capital assets. The risk-free rate represented as a rule by Treasury bill rate is a significant element of the cost of equity, which in turn associated with capital structure (Modigliani and Miller, 1958).

2.3. Macroeconomic factors and capital structure: literature research

According to the literature research, there are several authors investigating the relation between corporate capital structure and external factors. One of the most used external determinants of capital structure is Gross Domestic Product (Bastos, Nakamura & Basso, 2009; Bokpin, 2009; Dincergok & Yalciner, 2011; Camara, 2012). They find that there is a negative and significant relation between corporate capital structure and GDP (as well as GDP growth). Gajurel (2006) also argues that there is a negative relation with total debt ratio and short-term debt ratio, but there is a positive influence on the long-term debt ratio. The boost in economy and consequently growth in GDP lead to increase in companies profits. According to pecking order theory companies will prefer internal sources as retained earnings then debt.

The next widely investigating external factor is inflation rate. However, the findings of such studies differ. Bastos, Nakamura & Basso (2009) argue that inflation does not influence the capital structure; and Frank & Goyal (2009) find the relation between inflation and the market leverage, but no effect on the book leverage. Camara (2012) shows that macroeconomic conditions included inflation rate have significant relation with capital structure. Sett & Sarkhel (2010), Hanousek & Shamshur (2011) also argue that inflation has strong and positive influence on the capital structure. Rely on debt structure, Gajurel (2006) finds that inflation is negatively related to total leverage and the short-term debt ratio, but positively influences on the long-term debt ratio.

The relation between leverage and stock returns is investigated by several authors. Masulis (1983) finds that change in leverage is positively associated with change in stock returns. Later Bhandari (1988) also argues that leverage has a positive influence on the expected common returns. However, Korteweg (2004), Dmitrov & Jain (2008) find negative relation between leverage and returns. Artikis & Nifora (2011) also investigate the influence of stock returns on the capital structure and detect a negative and statistically significant relation between leverage and equity returns.

Industry median leverage has strong positive relation with capital structure (Hanousek & Shamshur, 2011). However according to the findings of Frank & Goyal (2009) the industry median leverage has influence only on the market leverage. Commercial paper spread (CPS) according to several authors (Korajczyk & Levy, 2003; Camara, 2012) has a significant influence on the capital structure. According to Bokpin (2009) interest rate as external factor positively and significantly influences the corporate capital structure. Conversely Dincergok & Yalciner (2011) argue that there is a negative relation between interest rate and capital structure.

Based on the study of Dincergok & Yalciner (2011) the stock market development has positive relation with capital structure. Moreover, market capitalization as a proxy for stock market development has a positive influence on the capital structure (Gajurel, 2006). At the same time Bokpin (2009) argues that there is no relation between these variables. And Sett & Sarkhel (2010) find negative relation between capital structure and stock market development.

Furthermore, there are other external determinants of corporate capital structure, for example developing of banking sector, public debt, ban credit, unemployment rate and etc. (Korajczyk & Levy, 2003; Bastos, Nakamura & Basso, 2009; Bokpin, 2009; Sett & Sarkhel, 2010; Camara, 2012). In addition, some authors investigate the influence of different macroeconomic indexes on the corporate capital structure. For instance, Duan, Chik bin. & Liu (2012) find that the product market index, legal system index, non-state economic structure index and financial market index are negatively correlated with debt ratio. Moreover, the companies choose short-term loans, if the degree of government intervention is stronger, efficiency of product market is higher and the legal system is robust. And the preferred source of financing is long-term loans, if the proportion of non-state economy is greater and development of financial sector is higher. The summarized findings of previous studies on the theme of capital structure and its determinants are provided in Appendix A.

3. Research design and methodology

The paper is based on the evidence from 7 countries represented developed and emerging markets. The countries of Visegard group as Czech Republic, Slovakia, Hungary and Poland have high income economies; however, they also exemplify emerging markets according several analytical agencies as Dow Jones, S&P[†]. In addition, Greece refers to emerging economies after the Global Financial Crisis. Advanced economies are represented by Germany and France. We constructed the sample containing the manufacturing companies for the period 2006–2011 from the international database Amadeus – Bureau van Dijk. The main selection requirements were region (if it is incorporated in an investigated country), industrial sector (if manufacture is the main specialization) and availability of appropriate information (if a company has all required data for the period 2006-2011).

The macroeconomic factors are revealed by indicators of monetary and fiscal policies, and several main determinants of economic development and stability. The variables of monetary policy are long-term interest rate (LTIR), short-term-interest rate (STIR), inflation rate as GDP deflator (IR) and money and quasi money (M2) as percentage of GDP, which indicate monetary conditions in general. Fiscal policy is represented by proxies as central government debt to GDP (CGD), tax revenue as percentage of GDP (TR), income taxes as percentage of revenue (IT). The variables unemployment rate (UR) and GDP growth (GDPg) feature macroeconomic development and stability. The corporate capital structure can be measured in different ways. One of the fundamental classifications of capital structure proxies is debt structure. Many studies are based not only on the total liabilities, but divide them into short- and long-term liabilities (Michaelas, Chittenden & Poutziouri, 1999; Hall, Hutchinson & Michaelas, 2000; Bhiard & Lucey, 2010; Hanousek & Shamshur, 2011; Keshtkar, 2012). For our research we have chosen three capital structure measures: total leverage represented by total debt to total assets (TL), long-term debt ratio represented by long-term liabilities to total assets (LTD) and short-term debt ratio represented by short-term liabilities to total assets (STD), in order to take into consideration structure of debt. In our research as a first step we provide Pearson correlation analysis, in order to investigate the influence macroeconomic factors on capital structure.

4. Empirical results

The obtained results vary across countries and depend on corporate debt structure. Thus, in Czech Republic there is a strong negative significant relation between inflation rate and total debt ratio and short-term debt ratio. The interest rates as another indicator of monetary policy have also negative but non-significant impact on the same proxies of capital structure. The fiscal policy represented by government debt has opposite influence on corporate capital structure: negative significant relation with total debt and short-term debt and negative significant relation with long-term debt. The tax revenue and income taxes have negative and non-significant relation with total leverage and short-term debt. But in the case of income taxes it positively and significantly affect long-term debt ratio. The money supply M2 as well as unemployment rate have non-significant strong positive influence on total leverage and short-term debt, but negative on long-term. The GDP growth has non-significant weak relation with all proxies of capital structure in all investigated countries, except Greece, where it has significant strong positive influence on short-term debt ratio.

In Slovakia the inflation rate has weak non-significant relation with corporate capital structure, as well as in other countries except France, where relations are strong significant but depends on debt structure, and Hungary, where its influence negative but non-significant. Interest rates both long-term and short-term have negative strong influence on capital structure; however, its significance depends on debt structure. The government debt has strong positive impact on capital structure in Slovakia and Hungary; moreover, Greece also has positive relation but weak and non-significant. The influence of monetary supply is negative but non-significant. At the same time unemployment rate has positive impact on capital structure.

[†] The attribution of countries to emerging markets is considered for the investigated period 2006–2011.

Table 1. An example of a table

Total Leverage	LTIR	STIR	IR	CGD	TR	IT	M2	UR	GDPg
Czech Republic	↓↓	↓↓	↓↓*	↑↑*	↓	↓↓	↑↑	↑↑	↓
Slovakia	↓↓**	↓↓	↓	↑↑*	↓↓	↓↓	↓↓	↑↑*	↓
Poland	↓	↑↑	↓	↓↓	↑↑	↑↑	↓	↓	↑↑
Hungary	↑	↓↓	↓↓	↑↑	↓	↓↓*	↑↑	↑↑	↑
Germany	↑↑**	↑↑*	↓	↓↓**	↓	↑↑*	↑	↑↑	↑
France	↑↑	↑↑*	↑↑*	↓↓**	↑↑	↑↑*	↓↓*	↓	↑
Greece	↓↓	↑↑	↑↑	↑	↑	↑	↓	↓↓	↑

↑↑ - strong positive relation (≥ 0.5); ↑ - not strong positive relation (≤ 0.5);

↓↓ - strong negative relation (≥ 0.5); ↓ - not strong negative relation (≤ 0.5)

* Correlation is significant at the 0.05 level

** Correlation is significant at the 0.01 level

Poland, Hungary and Greece have weak relation between long-term interest rate and capital structure; furthermore, its direction depends on corporate debt structure. At the same time in Germany and France both the long-term and short-term interest rates have strong positive and significant influence on total leverage. According to government debt, the level and direction of its influence rely on corporate debt structure and countries' specifics. Poland experiences negative influence of government debt on capital structure, as well as Germany and France, where the relations are significant with most variables. The variables represented taxes are positive related to total debt in Poland and France, but negative in Hungary and Czech Republic. In Poland the M2, unemployment rate and GDP growth have very weak and non-significant influence on capital structure. Unemployment rate has strong positive influence on total leverage in Czech Republic, Slovakia, Hungary and Germany, but only in Slovakia this relation is significant. In Greece, Poland and France there is a negative relation with capital structure, however, only in Greece it is strong, but also non-significant. In all countries corporate debt structure plays a great role not only in determination of relation direction, but also the power of influence. Furthermore, countries specifics and whereas it is emerging market or developed economy, all of these have a great impact on the associations between capital structure and macroeconomic factors. Table 1 illustrates the direction, strength and significance of investigated relations.

5. Conclusion

The managers make their financial decisions according to the source of financing based on the macroeconomic conditions and its countries' specifics. In this paper we investigate the relation between macroeconomic factors represented by indicators of monetary and fiscal policies and corporate capital structure. The sample consists of evidence from seven European countries as Czech Republic, Slovakia, Poland, Hungary, France, Germany and Greece symbolized emerging and developed markets. The findings show the importance of corporate debt structure and country specifics. To some extent the obtained results also indicated the significance of country's development as far as it represents emerging or developed market. The government debt has positive influence on the capital structure in majority of emerging markets and negative in developed. Moreover, the impact of other variables in developed countries is stronger and significant in most cases. It is interesting that in Greece, which suffered from Global Financial Crisis to a greater extent and was mark down in the world developing indexes, has the weakest relations. Inflation rate has positive influence in emerging markets and Germany, and negative in France and Greece. The interest rate both short-term and long-term has strong positive significant impact on capital structure in Germany and France.

The influence of macroeconomic factors varies across countries and depends on corporate debt structure. However, external determinants of capital structure play a great role in financial decision-making process. And the knowledge concerning the power and direction of such influence supports managers to make effective and accurate financing choice for stable and successful development. This is the first step to determine and investigate the

relation between macroeconomic factor and corporate capital structure. The further research assume to exceed the sample and investigated period, choose external factors, which are not highly correlated between each other and create regression model, in order to make results more significant and reliable.

Appendix A. External determinants of corporate capital structure: literature review

Authors	external determinants of capital structure	Sample of research	Findings
Jordan et al., 1998	Industry effect* Effective tax rate	United Kingdom 605 SMEs for the period 1989–1993	There is industry effect on the capital structure. There is no effect of tax rate on the capital structure.
Michaelas et al., 1999	Effective tax rate** Industry effects*	United Kingdom 3500 small firms for the period 1986–1995	Tax effects can be taken into consideration for short-term capital structure decisions. Industry effects have influence on the capital structure.
Korajczyk and Levy, 2003	Two-year corporate profit growth* 2-year equity market return* commercial paper spread*	USA 5623 event quarters for the period 1984 to 1999	There are negative relation between macroeconomic conditions and leverage (particular fro unconstrained companies)
Bauer, 2004	Tax* Industry classification*	Czech Republic 74 companies listed on the Prague Stock Exchange for the period 2000–2001	Tax is positively correlated with leverage, but on the lower level of significance.
Gajurel, 2006	GDP growth rate Inflation rate Market capitalization Market capitalization to GDP NEPSE index Number of listed companies	Nepal Companies listed on Nepal Stock Exchange Limited (NEPSE) for the period 1995–2004	The GDP growth rate has a negative influence on the total leverage and short-term debt., but a positive effect on the long-term debt. The inflation rate is also negatively related to total leverage and short-term debt ratio, but negative to long-term debt ratio. Market capitalization has positive influence on the long-term and short-term debt ratio.
Bastos et al., 2009	Growth of GDP* Income per capita Annual inflation rate Participation of publicity-traded companies in the economy* Tax burden* Business time*	Latin America: Mexico, Brazil, Argentina, Chile, Peru. 388 public-traded companies for the period 2001–2006	The growth of GDP has negative and significant relation with indebtedness. Income per capita and inflation do not influence the capital structure. Participation of publicity-traded companies in the economy has a negative and significant relation with capital structure. Tax burden has negative and significant impact on short-term debt. Business time has a positive relation with short-term leverage.
Bokpin, 2009	GDP per capita* Inflation* Stock market Development (market capitalization)* Interest rate* Bank credit	The companies from 34 emerging countries for the period 1990–2006	There is negative relation between GDP and capital structure. Inflation and short-term debt to equity ratio has positive relation. Interest rate significantly positively influences capital structure. Development in banking sector positively influences capital structure. There is a negative relation between stock market development and short-term debt.
Frank and Goyal, 2009	industry median leverage* expected inflation*	USA US non-financial companies over the period 1950–2003	The median industry leverage has influence on the market leverage. Inflation does not have effect on the book leverage.

Authors	external determinants of capital structure	Sample of research	Findings
Set and Sarkhel, 2010	Stock market development Banking sector development Rate of inflation Effective rate of corporate tax	India Non-financial private companies for the period 1981 - 2007	Banking sector development, rate of inflation and the effective rate of corporate tax have positive influence on the financial leverage. Stock market development has a negative effect on the capital structure.
Dincergok and Yalciner, 2011	Interest rate* Development in the banking sector Stock market development* Real GDP growth* Tax rates The public sector debt	Developing countries: Turkey Brazil Argentina Indonesia 220 manufacturing companies	There is a positive relation between stock market development, public sector debt and capital structure. There is negative correlation between interest rate, the real GDP growth and capital structure.
Hanousek and Shamshur, 2011	Corruption perception index* Industry median leverage* Expected inflation* GDP growth* Substantial economic transformation	Czech Republic (153410) Estonia (203394) Hungary (486698) Lithuania (23347) Latvia (26150) Poland (98328) Slovak Republic (23459) Non-financial companies over the period 1996–2006	Substantial economic transformation does not effect the capital structure. The GDP growth has a positive and significant relation with capital structure. Industry median leverage and expected inflation have strong and positive influence on the capital structure. Corruption perception index is strongly and positive related to capital structure.
Camara (2012)	The growth in aggregated capital expenditure of non-financial companies as a component of GDP Inflation Commercial paper spread GDP Unemployment rate	USA US non financial and non-regulated companies for the period 1991–2009	The macroeconomic factors and macroeconomic conditions have significant influence on the capital structure.
Duan et al., 2012	External: Government intervention degree* Non-state-owned economic structure* Market structure Financial structure of commercialization Legal system*	China 285 private enterprises listed in Shanghai and Shenzhen Stock Exchange for the period 2007–2009	The government intervention index, the product market index, the legal system index have negative relation with debt ratio. Non-state economic structure index and financial market index are negatively related to debt ratio.

Appendix B.

B.1. Correlation between macroeconomic factors and corporate capital structure: evidence from Czech Republic

	LTIR	STIR	IR	CGD	TR	IT	M2	UR	GDPg
TDR	-.706	-.804	-.914*	.885*	-.375	-.733	.599	.548	-.100
	.117	.054	.011	.019	.464	.097	.209	.260	.851
STD	-.666	-.794	-.906*	.905*	-.400	-.757	.644	.527	-.142
	.148	.059	.013	.013	.432	.081	.168	.282	.788
LTD	.035	.465	.566	-.885*	.577	.819*	-.982**	-.146	.591
	.947	.352	.242	.019	.230	.046	.000	.782	.217

* Correlation is significant at the 0.05 level; ** Correlation is significant at the 0.01 level

B.2. Correlation between macroeconomic factors and corporate capital structure: evidence from Slovakia

	LTIR	STIR	IR	CGD	TR	IT	M2	UR	GDPg
TDR	-.869**	-.772	-.372	.901*	-.642	-.545	-.677	.895*	-.188
	.025	.072	.468	.014	.169	.264	.140	.016	.722
STD	-.874*	-.107	.098	.366	.074	-.135	-.554	.766	.425
	.023	.841	.853	.475	.889	.798	.254	.076	.401
LTD	-.433	-.970**	-.598	.922**	-.950**	-.632	-.449	.564	-.630
	.391	.001	.210	.009	.004	.178	.372	.244	.180

* Correlation is significant at the 0.05 level; ** Correlation is significant at the 0.01 level

B.3. Correlation between macroeconomic factors and corporate capital structure: evidence from Poland

	LTIR	STIR	IR	CGD	TR	IT	M2	UR	GDPg
TDR	-.168	.781	-.106	-.654	.797	.605	-.469	-.011	.591
	.750	.067	.841	.159	.058	.203	.348	.984	.217
STD	-.347	.467	-.489	-.371	.682	.273	-.367	.180	.708
	.500	.350	.324	.470	.136	.600	.475	.733	.115
LTD	.216	.773	.556	-.680	.469	.736	-.332	-.299	.034
	.680	.072	.251	.138	.348	.095	.521	.564	.948

* Correlation is significant at the 0.05 level; ** Correlation is significant at the 0.01 level

B.4. Correlation between macroeconomic factors and corporate capital structure: evidence from Hungary

	LTIR	STIR	IR	CGD	TR	IT	M2	UR	GDPg
TDR	.036	-.552	-.617	.663	-.168	-.847*	.743	.789	.144
	.945	.256	.192	.151	.750	.033	.091	.062	.785
STD	-.181	-.650	-.552	.399	-.494	-.951**	.479	.574	.357
	.731	.162	.256	.433	.319	.004	.337	.234	.487
LTD	.394	-.224	-.543	.915*	.432	-.421	.970**	.920**	-.259
	.440	.670	.266	.011	.392	.406	.001	.009	.620

* Correlation is significant at the 0.05 level; ** Correlation is significant at the 0.01 level

B.5. Correlation between macroeconomic factors and corporate capital structure: evidence from Germany

	LTIR	STIR	IR	CGD	TR	IT	M2	UR	GDPg
TDR	.953**	.865*	-.005	-.966**	-.348	.872*	.319	.692	-.164
	.003	0.026	.992	.002	.499	.023	.538	.128	.757
STD	-.198	-.041	.331	.229	.70	.074	.491	-.767	-.444
	.706	.938	.522	.662	.073	.889	.323	.075	.378
LTD	.622	.446	-.253	-.657	-.784	.358	-.236	.960**	.269
	.187	.376	.628	.157	.065	.486	.652	.002	.607

* Correlation is significant at the 0.05 level; ** Correlation is significant at the 0.01 level

B.6. Correlation between macroeconomic factors and corporate capital structure: evidence from France

	LTIR	STIR	IR	CGD	TR	IT	M2	UR	GDPg
TDR	.806	.878*	.874*	-.935**	.686	.845*	-.887*	-.748	.226
	.053	.021	.023	.006	.132	.034	.018	.087	.667
STD	.823*	.899*	.919**	-.977**	.735	.809	-.884*	-.757	.379
	.044	0.15	.010	.001	.096	.051	.020	.081	.458
LTD	-.730	-.799	-.837*	.885*	-.681	-.671	.764	.665	-.462
	.1	.056	.037	.019	.137	.145	.077	.149	.356

* Correlation is significant at the 0.05 level; ** Correlation is significant at the 0.01 level

B.7. Correlation between macroeconomic factors and corporate capital structure: evidence from France

	LTIR	STIR	IR	CGD	TR	IT	M2	UR	GDPg
TDR	.806	.878*	.874*	-.935**	.686	.845*	-.887*	-.748	.226
	.053	.021	.023	.006	.132	.034	.018	.087	.667
STD	.823*	.899*	.919**	-.977**	.735	.809	-.884*	-.757	.379
	.044	0.15	.010	.001	.096	.051	.020	.081	.458
LTD	-.730	-.799	-.837*	.885*	-.681	-.671	.764	.665	-.462
	.1	.056	.037	.019	.137	.145	.077	.149	.356

* Correlation is significant at the 0.05 level; ** Correlation is significant at the 0.01 level

B.8. Correlation between macroeconomic factors and corporate capital structure: evidence from Greece

	LTIR	STIR	IR	CGD	TR	IT	M2	UR	GDPg
TDR	-.620	.526	.618	.440	-.305	.323	.344	-.687	.351
	.189	.283	.191	.382	.557	.533	.504	.132	.495
STD	-.591	.604	.334	.201	.167	.397	-.688	-.545	.938**
	.291	.204	.518	.703	.752	.436	.131	.263	.006
LTD	.275	-.332	-.032	.013	-.300	-.229	.814*	.201	-.730
	.598	.521	.952	.980	.563	.663	.049	.702	.099

* Correlation is significant at the 0.05 level; ** Correlation is significant at the 0.01 level

References

- Abaidoo, R., & Kwenin, D. O. (2013). Corporate profit growth, macroeconomic expectations and fiscal policy volatility, *International journal of economics and finance*, 5(8), 25–38.
- Artikis, P. G. & Nifora, G. (2012). Capital structure, macroeconomic variables & stock returns. Evidence from Greece, *International advances in economic research*, 12, 87–101. <http://dx.doi.org/10.1007/s11294-011-9334-z>
- Ameer, R. (2012). Macroeconomic factors and initial public offerings (IPOs) in Malaysia, *Asian academy of management journal of accounting and finance*, 8(1), 41–67.
- Bastos, D. D., Nakamura, W. T., & Basso, L. F. C. (2009). Determinants of capital structure of publicly-traded companies in Latin America: the role of institutional and macroeconomic factors, *Journal of international finance and economics*, 9(3), 24–39.
- Barton, S. L., & Gordon, P. J. (1988). Corporate strategy and capital structure, *Strategic management journal*, 9 (6), 623–632. <http://dx.doi.org/10.1002/smj.4250090608>
- Bauer, P. (2004a). Determinants of capital structure: Empirical evidence from Czech Republic. *Czech Journal of economics and finance*, 54(1-2), 2–21.
- Bauer, P. (2004b). Capital structure of listed companies in Visegrad countries, *Prague economic papers*, 2004(2), 159–175.
- Bhamra, H. S., Fisher, A. J., & Kuehn, L. A. (2011). Monetary policy and corporate default, *Journal of monetary economics*, 58 (5), 480–494. <http://dx.doi.org/10.1016/j.jmoneco.2011.05.010>
- Bhaird mac an, C. & Lucey, B. (2010). Determinants of capital structure in Irish SMEs, *Small business economics*, 35(3), 357–375.

- Bokpin, G. A. (2009). Macroeconomic development and capital structure decisions of firms: evidence from emerging market economies, *Studies in economics and finance*, 26(2), 129–142. <http://dx.doi.org/10.1108/10867370910963055>
- Camara, O. (2012). Capital structure adjustment speed and macroeconomic conditions: U.S. MNCs and DCs, *International research journal of finance and economics*, 84, 106–120.
- Chang, K.-L., Chen, N.-K., & Leung, C. K. Y. (2011). Monetary policy, term structure and asset return: comparing REIT, housing and stock. *The journal of real estate finance and economics*, 43(1), 221–257. <http://dx.doi.org/10.1007/s11146-010-9241-8>
- Das, U. S., Papapioannou, Pedras, G. Ahmed, F. & Surti, J. (2010). Managing public debt and its financial stability implications. IMF Working Paper, WP/10/280, 1–25.
- Daskalakis, N. & Psillaki, M. (2008). Do country or firm factors explain capital structure? Evidence from SMEs in France and Greece, *Applied financial economics*, 18(1), 87–97. <http://dx.doi.org/10.1080/09603100601018864>
- Dinceroglu, B., & Yalciner, K. (2011). Capital structure decisions of manufacturing firms' in developing countries, *Middle Eastern finance and economics*, 12, April, 2011, 86–100.
- Duan, H., Chik bin, A. R. & Liu, C. (2012). Institutional environment and capital structure: evidence from private listed enterprises in China, *International journal of financial research*, 3(1), 15–21.
- Durham, J. B. (2003). Monetary policy and stock price returns, *Financial analysts journal*, 59(4), 26–35. <http://dx.doi.org/10.2469/faj.v59.n4.2543>
- Frank, M. Z., & Goyal, V. K. (2009). Capital structure decisions: which factors are reliably important? *Financial management*, 38 (1), 1–37. <http://dx.doi.org/10.1111/j.1755-053X.2009.01026.x>
- Gajurel, D. P. (2006). Macroeconomic influences on corporate capital structure. Available at SSRN: <http://ssrn.com/abstract=899049> or <http://dx.doi.org/10.2139/ssrn.899049>
- Hall, G., Hutchinson, P. & Michaelas, N. (2000). Industry effects on the determinants of unquoted SMEs' capital structure, *International journal of the economics of business*, 7(3), 297–312. <http://dx.doi.org/10.1080/13571510050197203>
- Hanousek, J. & Shamsur, A. (2011). A stubborn persistence: Is the stability of leverage ratios determined by the stability of the economy? *Journal of corporate finance*, 17, 1360–1376. <http://dx.doi.org/10.1016/j.jcorpfin.2011.07.004>
- Jordan, J., Lowe, J. & Taylor, P. (1998). Strategy and financial policy in UK small firms, *Journal of business finance and accounting*, 25 (1 & 2), 1–27. <http://dx.doi.org/10.1111/1468-5957.00176>
- Keshkar, R., Valipour, H. & Javanmard, A. (2012). Determinants of corporate capital structure under different debt maturities: empirical evidence from Iran, *International research journal of finance and economics*, 90, May, 46–53.
- Korajczyk, R. A., & Levy, A. (2003). Capital structure choice: macroeconomic conditions and financial constraints, *Journal of financial economics*, 68(1), 75–109. [http://dx.doi.org/10.1016/S0304-405X\(02\)00249-0](http://dx.doi.org/10.1016/S0304-405X(02)00249-0)
- Kouki, M. & Said, H. B. (2012). Capital structure determinants: new evidence from French panel data, *International journal of business and management*, 7(1), 214–229.
- Li, Y. D., Iscan, T. B., & Xu, K. (2010). The impact of monetary policy shocks on stock prices: evidence from Canada and the United States. *Journal of international money and finance*, 29(5), 876–896. <http://dx.doi.org/10.1016/j.jimonfin.2010.03.008>
- Lim M, T. C. (2012). Determinants of capital structure: empirical evidence from financial services listed firms in China, *International journal of economics and finance*, 4(3), 191–203.
- Modigliani, F. & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment, *The American economic review*, 48(3), 261–287
- Michaelas, N., Chittenden, F. & Poutzioris, P. (1999). Financial policy and capital structure choice in U.K. SMEs: empirical evidence from company panel data, *Small business economics*, 12(2), 113–130. <http://dx.doi.org/10.1023/A:1008010724051>
- Myers, S., & Majluf, N. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of financial economics*, 13, 187–221.
- Nguyen, T., & Wu, J. (2011). Capital structure determinants and convergence. *Bankers, markets and investors*, 111, March–April, 2011, 43–53.
- Ozkan, A. (2001). Determinants of capital structure and adjustment to long run target: evidence from UK company panel data. *Journal of business finance and accounting*, 28(1–2), 175–198. <http://dx.doi.org/10.1111/1468-5957.00370>
- Titman, S., & Wessels, R. (1988). The determinants of capital structure choice, *Journal of finance*, 43(1), 1–19. <http://dx.doi.org/10.1111/j.1540-6261.1988.tb02585.x>
- Pal, K., & Mittal, R. (2011). Impact of macroeconomic indicators on Indian capital markets. *The journal of risk finance*, 12 (2), 84–97. <http://dx.doi.org/10.1108/15265941111112811>
- Singh, T., Mehta, S., & Varsha, M. S. (2011). Macroeconomic factors and stock returns: evidence from Taiwan. *Journal of economics and international finance*, 2(4), 217–227.
- Sett, K. & Sarkhel, J. (2010). Macroeconomic variables, financial sector development and capital structure of Indian private corporate sector during the period 1981–2007. *The IUP journal of applied finance*, 16(1), 40–56.